

## CLAIMS

1. A light emitting diode having at least one (semi)conductive electroluminescent active layer which comprises at least two different electroluminescent functionalities, wherein the emission spectrum of the diode exhibits at least two intensity maxima and wherein the active layer 5 comprises at least one electroluminescent organic compound.
2. A light emitting diode according to claim 1, wherein the electroluminescent compound is selected from the group consisting of electroluminescent polymers, electroluminescent oligomeric dyes and electroluminescent single dyes.
- 10 3. A light emitting diode according to claim 2, wherein the organic compound is an electroluminescent polymer.
4. A light emitting diode according to any one of the preceding claims, wherein two different electroluminescent functionalities are formed by a first and a second electroluminescent compound, wherein the first 15 compound has a maximum in the emission spectrum at a different wavelength than the second compound.
5. A light emitting diode according to any one of the preceding claims, wherein at least two different electroluminescent functionalities form part of one electroluminescent compound.
- 20 6. A light emitting diode according to claim 5, wherein the compound is selected from the group consisting of copolymers having at least two different electroluminescent segments, electroluminescent polymers derivatized with at least one electroluminescent dye, and non-electroluminescent compounds, preferably polymers, derivatized with at 25 least two different electroluminescent dyes.
7. A light emitting diode according to any one of the preceding claims, wherein at least one electroluminescent compound is selected from the group consisting of poly(paraphenylene vinylene) compounds, polyfluorene

compounds, copolymers of said polymers and said polymers derivatized with one or more of said dyes.

8. A light emitting diode according to claims 1-7, whose emission spectrum is bimodal.
- 5 9. A light emitting diode according to claims 1-8, wherein the difference in wavelength between two consecutive maxima in the emission spectrum is at least 40 nm.
10. A light emitting diode according to any one of the preceding claims, whose emission spectrum has at least one maximum, preferably at least two maxima, in the wavelength range of 190-1500 nm, preferably of 400-800 nm.
11. A light emitting diode according to any one of the preceding claims, wherein the intensity ratio between two consecutive maxima in the emission spectrum is in the range of 0.5 to 1.
12. A light emitting diode according to any one of the preceding claims, 15 wherein in the emission spectrum the peak to valley ratio of the first and the second maximum is at least 2, preferably at least 10.
13. A light emitting diode according to any one of the preceding claims, wherein the LED comprises a filter, preferably a filter with notch filter properties, which filter selectively has at least a reduced transmission of 20 light of a wavelength between two consecutive intensity maxima.
14. A method for manufacturing a light emitting diode according to any one of the preceding claims, wherein at least one active layer, which comprises at least one electroluminescent compound as defined in any one of claims 1-13, is applied to an electrode.
- 25 15. A method according to claim 14, wherein the light emitting diode is applied by means of spin coating or printing.
16. A detection system comprising a light emitting diode having at least one (semi)conductive electroluminescent active layer which comprises at least two different electroluminescent functionalities, wherein the 30 emission spectrum of the diode exhibits at least two intensity maxima.

17. A detection system comprising a light emitting diode which comprises at least one (semi)conductive electroluminescent active layer and which light emitting diode, depending on the direction of the electric current through the active layer, emits light having a first intensity maximum or,  
5 conversely, light having a second intensity maximum, different from the first intensity maximum.
18. A detection system according to claim 16 or 17, comprising a light emitting diode according to any one of claims 1-13.
19. Use of a single light source, preferably a light emitting diode, for  
10 generating a reference signal and a detection signal in a detection system, wherein the  $\lambda_{\max}$  of the reference signal differs from the  $\lambda_{\max}$  of the detection signal.
20. Use according to claim 19, wherein detection signal and reference signal are both directed at a composition to be analyzed.
- 15 21. Use according to claim 19 or 20, wherein the light source is a light emitting diode according to any one of claims 1-13 or a light emitting diode as defined in claim 16 or 17.